

# **ABS Data Quality Framework: Linking Quality Assessment to Development of Performance Indicators**

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## **1. Introduction**

The Australian Bureau of Statistics (ABS) is Australia's official national statistical agency. The ABS' mission is to assist and encourage informed decision making, research and discussion within governments and the community, by leading a high quality, objective and response national statistical service. However, it is recognised that "Confidence in the quality of the information it produces is a survival issue for a statistical agency" Brackstone (1999) and the ABS maintains this trust with our users through the use of frameworks for ensuring the quality of our statistics, amongst other quality assurance initiatives.

One of these frameworks is the Australian Bureau of Statistics Data Quality Framework. The ABS Data Quality Framework comprises of seven dimensions based on Statistics Canada's Quality Assurance Framework and the European Statistics Code of Practice. The seven dimensions are Institutional Environment, Relevance, Timeliness, Accuracy, Coherence, Interpretability and Accessibility. The dimension of Institutional Environment comes from the European Statistics Code of Practice and was added to the ABS Data Quality Framework in December 2007 after much discussion and debate amongst senior managers. It had long been acknowledged by senior managers that trust and credibility of an organisation were aspects of quality that should be considered for assessment purposes. The increasing use of administrative data by the ABS contributed to the inclusion of Institutional Environment to the Data Quality Framework. It was felt that this dimension needed to be included to ensure greater transparency of the quality of the data being used in ABS output given the increasing use of data that were not strictly from ABS collections.

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<sup>1</sup> The views expressed are attributable to the authors and do not necessarily reflect those of the Australian Bureau of Statistics.

Dennis Trewin (2001) had already foreshadowed the development of quality declarations in 2001 when he wrote about the presentation of statistics on the internet which included the need to educate the user community on the quality of official statistics, "There is an obligation on us [ABS] to provide a range of supporting information on data outputs, including that on quality, so that they [users] can make their own judgements on fitness of use". The ABS externalised the Data Quality Framework on the ABS website initially through reporting the quality of their statistical products in the form of Quality Declarations from January 2008. Quality declarations provide a synopsis of the quality of the statistics being accessed according to the seven dimensions of the ABS Data Quality Framework. Quality declarations were designed for electronic web release only. They were a part of the ABS' electronic data and metadata vision project which included the move away from paper publications to web based releases only. Quality declarations use hyperlinks to more detailed information where applicable and are themselves accessible through a link near the heading of the statistical release on the ABS website. They were designed to complement but not replace existing metadata sources on the web (e.g. Explanatory notes, Concepts sources and methods, Technical notes), which are more detailed. The detail that is provided within each dimension of the quality declaration may differ across quality declarations because all collections are different and hence have different quality aspects that need to be declared. For example surveys of carers or indigenous populations are likely to have coverage issues and surveys with sensitive topics may have response bias.

A more definitive explanation of the ABS Data Quality Framework and its uses was released in May 2009 to the ABS website. The paper, ABS Data Quality Framework, May 2009 (cat no. 1520.0), described the dimensions of the ABS Data Quality Framework in detail to enable its use in defining the quality of a data item or collection of data items; assessing data in the context of a data need; and identifying data gaps and areas of future improvement.

## **2. External use of the ABS Data Quality Framework for Assessment and the ABS Role**

Whilst the ABS is focussed on the ongoing improvement of our own internal quality assurance processes and looking for international collaborations where possible, there is also an imperative to look to externalise best practice and guidelines to the Australian community. The ABS Data Quality Framework is one of these 'best practice' guides that has been formally adopted by other Australian government departments for use as one part of an overall quality management strategy.

The Council of Australian Governments mandated in 2008 that the ABS Data Quality Framework was to be used to assess the performance indicators of the National Reporting Framework "National Agreements" which influence funding

to State and Territories in Australia<sup>2</sup>. The ABS Data Quality Framework would be used to declare the quality of the data provided for the performance indicators in the form of accompanying Quality Statements that assess the quality of the data in regards to the performance indicator. This announcement was a major achievement in the externalisation of the ABS Data Quality Framework.

The quality statements that are required for COAG reporting are similar to the ABS' own quality declarations with the major difference being that quality statements for COAG are specific quality assessments on how well the data meets the performance indicator rather than the ABS' own quality declarations which are very general in the information presented due to the specific purpose of the data by a user being unknown.

COAG mandating the use of the ABS Data Quality Framework has led to an increase in the use of the ABS Data Quality Framework by government departments for the supply of data reports for the performance indicators. However a further consequence has been an increase in interest from government departments in relation to incorporating the Framework into their internal processes.

The announcement by COAG that the ABS Data Quality Framework would be used to declare the quality of the data provided for the performance indicators led to a flurry of questions about the Framework. At the time of the announcement the ABS Data Quality Framework, whilst mentioned on the ABS website was not easily accessible. The ABS rectified this issue by producing the [ABS Data Quality Framework, May 2009 \(cat. no. 1520.0\)](#) product which provides an overview of all the dimensions and how to use the Framework. This was the start of the ABS' commitment to aiding COAG in its quest to have a more transparent National Reporting Framework.

The ABS has had numerous roles in the development of quality statements for COAG. The roles have included that of data provider, advisor and assessor. The roles have evolved over the past twelve months with everyone involved in the COAG reporting process learning progressively.

In the role of data provider the ABS, like other data providers for COAG, is required to provide quality statements to accompany the indicator data. These statements were written by the relevant areas in the ABS. They covered all the seven dimensions and commented on the fitness for purpose of the data for the indicator specified. As with other providers of data and quality statements, the first year of reporting was quite new and over time it is expected that the content

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<sup>2</sup> The Council of Australian Governments (COAG) is the peak intergovernmental forum in Australia. COAG comprises the Prime Minister, State Premiers, Territory Chief Ministers and the President of the Australian Local Government Association (ALGA). The role of COAG is to initiate, develop and monitor the implementation of policy reforms that are of national significance and which require cooperative action by Australian governments.

of quality statements will be refined and become more explicitly set by COAG as to requirements.

In the role of advisor the ABS has acted as both a teacher and consultant. The ABS has provided seminars to government departments on the ABS Data Quality Framework and how it can be used for their own internal purposes and for COAG reporting purposes. These seminars have been interactive and have led to departments requesting workshops and training courses for more tailored help.

Consultancy work differs from teaching in that it's an on-going specific role. The ABS has acted as a consultant to two of the groups that work on the reports that are presented to COAG. Advice was provided on possible content expected within each dimension of the ABS Data Quality Framework. This involved reviewing draft quality statements and considering other information not mentioned that might have a bearing on whether the data was fit for COAG's purpose. This advice was considered and where appropriate the questions for more information were directed to the suppliers of the data. The ABS also supplied a staff member to one of these groups in an outposting arrangement to explicitly help in the set up of this new reporting program. This officer has acted as an advisor and also facilitated communication between the group and the ABS where necessary.

The expertise of the ABS was requested by COAG in the role of assessor. The ABS review quality statements produced (including their own) and provide feedback on how well the data meets the requirements along with suggested improvements for quality statements for subsequent rounds of reporting. The role has also seen the ABS helping to identify data gaps through analysis of the quality statements and the fitness for purpose of the data for the performance indicators, such as the ABS increasing sample size in some of our population surveys to meet COAG requirements of State and Territory level data for comparison. It has also led to new collections being developed primarily for COAG reporting purposes. These changes have been very quick to be implemented to the survey program of the organisation.

### **3. New Initiative to Aide the Creation of Quality Statements**

The first cycle of the National Reporting Framework National Agreements and their subsequent quality statements was completed in 2009. Feedback from users of the ABS Data Quality Framework for COAG reporting purposes, indicate they have found it difficult to know what to report beneath each dimension and the usefulness of Institutional Environment. As a result the ABS developed a quality tool, ***Data Quality Online***, which will help users draft quality statements using the ABS Data Quality Framework by providing contextual information within each dimension to guide the content.

The contextual information beneath each dimension is in the form of questions. These questions are for consideration when constructing a quality

statement to declare the quality of the data in the context of the performance indicator (or data need). They may require the data provider to refer back to existing internal performance indicators of process quality and report on these within the quality statement. The questions may also identify information that hadn't previously been considered for reporting purposes on the quality of the data. They may also identify gaps in the knowledge of the quality of the process and hence identify a need for the development of additional performance indicators by the user on their internal processes.

Aside from the formal reporting of quality statements for the performance indicators for COAG reporting, government departments have shown an interest in the use of the ABS Data Quality Framework to quality assess their own data holdings. This has been especially in regards to the quality assessment of their administrative data. In response to this need the **Data Quality Online** tool will also contain information on the use of the ABS Data Quality Framework for more generic purposes other than specific COAG reporting.

The contextual information contained within the tool (**Data Quality Online**) for formal reporting purposes was developed in conjunction with feedback from the first round of COAG reporting. The feedback came from those users who had to create quality statements for reporting to COAG and those agencies responsible for collating the quality statements. The generic information for general use of the ABS Data Quality Framework has been developed but has yet to undergo user testing. This testing is scheduled to be completed by June 2010.

The first release of **Data Quality Online** with information pertaining to the COAG reporting quality statements occurred on the 25th of March 2010, on the national statistical service website <[www.nss.gov.au](http://www.nss.gov.au)>. This occurred after testing of the system and the questions were undertaken by both the ABS and some external agencies involved in the COAG reporting.

Further development on the **Data Quality Online** tool in respect to both COAG reporting and general use of the ABS Data Quality Framework for declaring quality will occur throughout 2010 once further feedback from users has been obtained.

#### **4. ABS Data Quality Framework and the Development of Performance Indicators**

The performance indicators for COAG reporting are to be reviewed each year to assess whether they are delivering the results required in terms of the outcomes they are supposed to reflect. The assessment of the performance indicator will come directly from the quality statements that use the ABS Data Quality Framework for assessing. In this case data gaps for those indicators that are not able to be delivered upon due to current data constraints may lead to underlying data sources being expanded to be able to supply the required information. An example of this is an increase in funding to the ABS by COAG to increase the sample size of at least one of our population surveys.

Performance indicators will also be reviewed in regards to whether they meet the outcomes required. It may be that the original performance indicator specified by COAG does not make sense in the context of real world information or what is now known from experience of the first round of reporting.

Where data gaps are identified in the reporting for outcomes, new performance indicators will be developed for reporting upon. Alternatively where existing performance indicators need to be removed because they are no longer fit for purpose this will also occur.

***Data Quality Online*** has been developed quickly to meet the specific COAG reporting need for information on how to use the ABS Data Quality Framework. As a result, further feedback from the 2009 round of quality statements and subsequent rounds will provide opportunities for further refinement and improvements to the content within each dimension. These improvements may highlight additional performance indicators, both at the National Agreement and process orientated levels, required for the ongoing quality reporting to COAG.

For government departments using the ABS Data Quality Framework to quality assure their own data holdings, the questions within each dimension will promote continuous improvement in the underlying processes by highlighting gaps in the performance indicators of these processes. For example, questions relating to adjustments to data and impacts of these adjustments on the data will prompt further investigation by data holders if this information is not already available. Another example would be questions relating to the percentages of missing data, be it through non-response or incorrect coding etc., may draw attention to missing performance indicator information of the process.

As a result of the use of the ABS Data Quality Framework by government departments for reporting to COAG, or for general quality assessment of data holdings, users will become more familiar and understand their data better. This is through both reporting on existing known quality aspects of the data in question and also the development of additional performance indicators for either internal processes or for the National Agreements to help with declaring the quality of the data.



## 5. Future opportunities for externalisation of the ABS Data Quality Framework

The up take of the ABS Data Quality Framework in the government sector for assessment purposes and hence performance indicator development for both the formal creation of quality statements for COAG reporting and for internal quality assurance processes has been a great achievement of the ABS'. The ABS is looking for further opportunities to expand the use of the ABS Data Quality Framework within the Australian community. The latest endeavour includes opportunities to provide information to the private sector on the ABS Data Quality Framework and its uses through participation in various forums. In particular, the ABS has submitted a synopsis on the ABS Data Quality Framework to the Australian Market and Social Research Society which may be distributed to its members for consideration as a discussion topic at various forums in the future.

It is hoped that through promotion of the ABS Data Quality Framework to the Australian Market and Social Research Society that the ABS Data Quality Framework may be used throughout the private sector to also declare and assess their data collections. Providing information to the Society on the use of the ABS Data Quality Framework by government departments may help the private sector when supplying data to these government departments by having a consistent framework on which to declare the quality of the data being supplied.

The direction for the ***Data Quality Online*** tool has yet to be fully explored and further discussions with external client agencies, other than COAG related ones, could result in the tool being expanded to cater for other requirements.

These possible future developments may help cement the ABS Data Quality Framework as the framework that is used for quality assurance throughout Australian Government departments, not only for COAG purposes, but for general internal practices and processes, as well as the private sector in Australia.

## 6. Conclusion

The adoption of the ABS Data Quality Framework by the Council of Australian Governments for use in reporting the quality of the performance indicators for their National Agreements has provided the ABS with an opportunity to expand their statistical leadership role. The development of the ***Data Quality Online*** has been in response to the needs of users in other government organisations who have been requesting greater clarification on using the ABS Data Quality Framework. This is for both meeting COAG requirements as well as for their own internal processes. The ***Data Quality Online*** tool helps users draft quality statements for assessment purposes by having detailed contextual questions beneath each of the dimensions of the ABS

Data Quality Framework. Thus, the ABS is enabling the government departments to develop performance indicators at both a national level (National Agreements) and at the individual process levels. This is in line with the ABS' mission of assisting and encouraging informed decision making, research and discussion within governments and the community, by leading a high quality, objective and response national statistical service

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